

REMARKS

The application has been reviewed in light of the Office Action dated June 28, 2005. Claims 1-54 are pending, with claims 1, 10, 19, 28, 37 and 46 being in independent form. By this Amendment, Figs. 1 and 2 and the specification have been amended to place the application in better form for examination.

The disclosure was objected to under 35 U.S.C. §112, first paragraph, as being non-enabling. Claims 4-7, 13-16, 22-25, 31-34, 40-43 and 49-52 were rejected under 35 U.S.C. §112, first paragraph, as purportedly failing to comply with the enablement requirement. Claims 4-7, 13-16, 22-25, 31-34, 40-43 and 49-52 were rejected under 35 U.S.C. §112, second paragraph, as purportedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, the Office Action stated that the terms such as “run aggregate figure” and “run aggregate data” in the disclosure which contain the term “aggregate” are purportedly not clearly defined in the specification. The Office Action also states that the claim term “run aggregate figure” is not defined.

Applicant submits that one skilled in the art would understand that the term “run aggregate figure” refers to a figure including data run aggregates (or figure of data run aggregates) to which the specification refers many times (see, for example, page 31, line 18 through page 32, line 17).

Regarding “run aggregate data”, it is noted that this term is never used in the disclosure. However, the term “data run aggregates” is used in the disclosure.

The application states at page 32, lines 18-21 as follows: “Each of the data run aggregates represents a data block which extends from a start point sx to an end point ex in the horizontal

direction X along the axis x with an arbitrary point in the coordinate y.”

Further, some of the definitions of the term “aggregate” are stated in Webster’s Ninth New Collegiate Dictionary (a copy of the relevant pages of which is attached hereto as **Exhibit 1**) as follows: “¹aggregate ... : formed by the collection of units or particles into a body, mass or amount: COLLECTIVE ... ³aggregate ... 2: a mass or body of units or parts somewhat loosely associated with one another ...”

Thus, one skilled in the art would understand that rendering of a figure including a data run aggregate is performed by applying one or more rendering instructions common to each of the data in the data run aggregate.

Applicant submits that the term “run aggregate figure” would be well-understood by one skilled in the art in view of the disclosure, and that the disclosure is enabling with regard to each of the claims of the present application.

Accordingly, reconsideration and withdrawal of the objection to the disclosure, the indefiniteness rejection and the enablement rejection are requested.

The specification was objected to because the (assumed) bus element shown in Fig. 1 is not mentioned in the drawing or the specification. The drawings were objected to because the (assumed) bus elements in Figs. 1 and 2 are not labeled. Claims 1-8 and 29-54 were rejected under 35 U.S.C. §112, second paragraph, as purportedly being incomplete for omitting essential elements, such omission amounting to a gap between the elements.

By this Amendment, Figs. 1 and 2 have been amended to comport with the corresponding discussions in the specification. For example, the element in Fig. 1 which the Examiner believed to be a bus was actually a notional representation of the operational connection between the CPU 14 and the interpreter, that is, the interpreter operation is performed by the CPU. The Examiner

is respectfully referred to page 19, lines 7-12 which states as follows:

More specifically, the PDL data that are input from the host PC 1 to the printer controller 2 are input to the interpreter 10, then the PDL data are interpreted as intermediate data fitted to a rendering process and are stored in the intermediate data memory 20. The operation is performed by the CPU 14. ...

Fig. 1 has been amended to show that the interpreter operation is performed by the CPU.

Fig. 2 has similarly been amended to more accurately show the printer driver 102 which of course is typically firmware and/or software executed on a processor. The CPU 114 performs other functionalities of the printer driver software which are unrelated to the overlay processing subject matter of this application.

The Office Action stated that essential communication devices between elements have been omitted.

Applicant respectfully submits that all of the relevant elements are properly shown in Figs. 1 and 2 as amended, and requests withdrawal of the objections to the drawings and specification and rejection under 35 U.S.C. §112, second paragraph.

Claims 1, 3-10, 12-19, 21-28, 30-37, 39-46 and 48-54 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent Application Publication No. 2003/0152272 of Venable in view of U.S. Patent No. 6,597,363 to Duluk, Jr. et al. and U.S. Patent No. 6,148,118 to Murakami et al. Claims 2, 11, 20, 29, 38 and 47 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Venable in view of Duluk and Murakami, and further in view of McIntosh, "Postscript: A Page Description Language".

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 1, 10, 19, 28, 37 and 46 are patentable over the cited art, for at least the following reasons.

This application relates to improved image processing techniques for accelerating an

image overlay process. In some image processing circumstances, one image (for example, a graphical figure) is overlaid by a second image (for example, another figure). However, conventional techniques typically communicate, and then process, the image data for the first image in its entirety as well as the image data for the second image in its entirety. The processing of overlaid image data is in particular an unnecessary waste of resources.

The improved image processing apparatuses of this application (a) detects image overlay (that is, the first image is overlaid by the second image) and then (b) omits the overlaid image. Thus, communication and processing resources can be conserved.

Venable, as understood by Applicant, is directed to a method for processing multiple digital images wherein bleeding of edges of the multiple digital images can be reduced by determining the boundaries of the images, determining that an overlap of boundaries exists, calculating the overlap and **blending** the overlapped images to yield a third image which depicts a combination of the two images without an overlap.

However, although Venable discloses detection of boundary overlap, Venable is not concerned with image overlay. As acknowledged in the Office Action, in the processing of Venable, the two images are blended, and not overlaid one covering the other.

Duluk, as understood by Applicant, is directed to assorted graphical processing techniques.

The Office Action cites column 16, line 56 through column 17, line 35 of Duluk as purportedly teaching occlusion of one image by another.

However, Duluk actually teaches at column 16, line 56 through column 17, line 35 that blending primitives are used. Specifically, Duluk states that "the primitive is treated as not being able to fully occlude prior geometry".

In addition, although Duluk mentions clipping an image, such discussion is in the context of clipping a portion of an image which is not in a viewing volume, and not in the context of image overlay.

Applicant does not find teaching or suggestion in Venable or Duluk that an overlay detector specifies a portion of the first original image to be overlaid by the second original image upon detecting an overlay of the first and second original images, deletes a specified portion and draws a third output image, based on the original images, in which the specified portion of the first original image is deleted and stores the second rendering data into the memory, as provided by the claimed invention of claim 1.

Murakami, as understood by Applicant, is directed to processing of large-sized documents. In particular, such a large-sized document is typically divided into plural manageable images having overlapping portions with each other. Murakami teaches that the plural images are recombined by detecting a joining line on overlapping images, and discarding an overlapping portion of each of the overlapping images which adjoins the joining line.

Murakami is not directed to detection of image overlay. Moreover, Murakami, like Venable and Duluk, does not disclose or suggest that an overlay detector specifies a portion of the first original image to be overlaid by the second original image upon detecting an overlay of the first and second original images, deletes a specified portion and draws a third output image, based on the original images, in which the specified portion of the first original image is deleted and stores the second rendering data into the memory, as provided by the claimed invention of claim 1.

The Office action also referenced U.S. Patent No. 6,867,801 to Akasawa.

Akasawa, as understood by Applicant, is directed to a digital still camera. Akasawa

teaches the formation of a panoramic image by joining plural regular-sized images. Akasawa teaches that overlap is detected between adjoining images by comparing image data.

Akasawa, like the other cited references, does not involve image overlay.

McIntosh, as understood by Applicant, is directed to the POSTSCRIPT page description language.

Applicant simply does not find disclosure or suggestion by the cited art, however, of an image processing apparatus comprising an overlay detector and a memory, wherein the overlay detector performs overlay detection to detect an overlay of the first and second original images which are rendered based on the first and second rendering data by the first and second rendering instructions, respectively, specifies a portion of the first original image to be overlaid by the second original image upon detecting an overlay of the first and second original images, deletes a specified portion and draws a third output image, based on the original images, in which the specified portion of the first original image is deleted and stores the second rendering data into the memory, as provided by independent claim 1.

Independent claims 10, 19, 28, 37 and 46 are patentably distinct from the cited art for at least similar reasons.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 1, 10, 19, 28, 37 and 46, and the claims depending therefrom, are patentable over the cited references.

In view of the amendments to the specification and drawings and remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an additional extension of time is required to make this response timely,

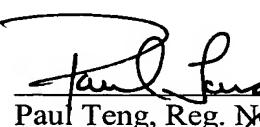
Hiroshi ISHIHARA, S.N. 10/625,111
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this paper should be considered to be such a petition. The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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